REMARKS

Claim Rejections under 35 U.S.C. 103(a)

Claims 1-5, 8 and 10-15 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cushner et al. (U.S. Patent No. 5,798,202) in view of Sasashita et al. (U.S. Patent No. 5,916,732) and further in view of Asahi Glass Company. Further, claims 5-7 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cushner et al. in view of Sasashita et al. in view of Asahi Glass Company, in view of Watanabe et al. (U.S. Patent Publication No. 2002/0045126 A1) and further in view of Mohr et al. (U.S. Patent no. 5,851,649).

Traverse is made as follows.

In the outstanding Office Action, the Examiner holds a position that the resin composition used for producing the laser engravable printing element of the present invention, namely the specific combination of resin (a), organic compound (b) and inorganic porous particles (c) defined in claim 1 of the present application, would have been obvious from the combination of Cushner et al. (hereinafter referred to simply as "Cushner"), Sasashita et al. (hereinafter referred to simply as "Sasashita") and Asahi Glass Company (hereinafter referred to simply as "Asahi Glass"). However, as explained in detail below, there is no motivation to combine the teachings of Asahi Glass and Sasashita with the resin composition used in Cushner for forming a laser engravable printing element.

[A] Combination of Cushner and Asahi Glass

In the outstanding Office Action, the Examiner states that the use of specific silica particles of Asahi Glass in the composition of Cushner would have been obvious to a skilled person. Specifically, the Examiner states as follows.

> "It would have been obvious to one of ordinary skill in the art to use the SUNSPHERE particles in the composition of Cushner because Asahi Glass teaches that the particles are conventionally used as a resin filler." (emphasis added) (see page 3, lines 5-7 of the Office Action)

> "it is obvious that although the SUNSPHERE and SYLOSPHERE particles have features associated with cosmetics, the particles also have applications in coating printed materials. Laser engravable printing plates are printed materials." (emphasis added) (see page 10, lines 4-7 of the Office Action)

As apparent from the above-quoted descriptions of the Office Action, the Examiner's reasons for rejection are based on contentions that (1) the description on the utility of SUNSPHERE silica particles as a resin filler teaches the use of silica particles as a reinforcing

agent in a resin composition for forming a laser engravable printing element, and that (2) Asahi Glass teaches the use of silica particles in a "printing material", including a laser engravable printing element.

According to Cushner, a reinforcing agent, such as silica, is used to improve laser engravability and mechanical properties, such as tensile strength, abrasion and tear resistance, hardness and toughness of the printing element (see col.5, lines 12-14 and 20-22 of Cushner). However, Asahi Glass has no teaching or suggestion about the above-mentioned improvements imparted by the addition of silica particles. Specifically, Asahi Glass only discloses the use of silica particles as a "filler for coated printing paper", namely the filler for a resin composition used for coating a paper. Further, the four specific utilities of a resin filler described in Asahi Glass are (1) surface smoothing, (2) improving fluidity, (3) anti-blocking, and as a (4) moisture absorbent; but none of the utilities (1) to (4) are applicable to a reinforcing agent in a resin composition for forming a printing element. Therefore, Asahi Glass has no teaching or suggestion about the application of silica particles in a resin composition for forming a laser engravable printing element.

In order to substantiate this argument, the Applicants submit herewith, as Exhibit 5, a Declaration executed by Mr. Hiroshi Yamada. In Exhibit 5 of Mr. Yamada Declaration, Mr. Yamada has made observations on the disclosure of Asahi Glass, with reference to the following prior art documents which are submitted herewith as Exhibits 6 to 9:

Exhibit 6: U.S. Patent No. 5,281,467;

Exhibit 7: U.S. Patent No. 5,771,431;

Exhibit 8: Japanese patent Application Laid-Open Specification No. Hei 9-104167 and a partial English translation thereof; and

Exhibit 9: Japanese patent Application Laid-Open Specification No. Sho 55-051583 and a partial English translation thereof.

Specifically, in "Observation 1: Coated printing paper" of Exhibit 5, Mr. Yamada made observations on the "coated printing paper" with reference to Exhibits 6 to 9 to clarify the differences between the "coated printing paper" described in Asahi Glass and the "printing element" and the "printing plate" defined in Cushner and the present application.

Further, in "Observation 2: Utility of silica particles as a resin filler" of Exhibit 5, Mr. Yamada made observations on the four specific utilities of SUNSPHERE silica particles as a

resin filler with reference to Exhibits 6 to 9 to demonstrate that all four utilities described in Asahi Glass are applicable to the "filler for coated printing paper", but are not applicable to a reinforcing agent used in a resin composition for forming a printing element.

From the observations of Exhibit 5 and Exhibits 6 to 9, it can be fairly concluded:

that, Asahi Glass only discloses a "coated printing paper" which is a paper having a resin coating on the surface thereof and has no description about "coating printed materials" mentioned at page 10, line 6 of the Office Action dated January 30, 2009;

that, in Cushner and the present application, a laser engravable "printing element" is a cured resin composition used as a base material for a printing plate, and a "printing plate" is a resin plate which has a relief pattern formed thereon by laser engraving and which is used for transferring an image to a substrate (such as a printing paper);

that, therefore, a "printing element" is neither a printed material nor a generic term used to express any printing material, such as a printing paper;

that, Asahi Glass describes four specific utilities of SUNSPHERE silica particles as a resin filler, and all four utilities are applicable to a "filler for coating printing paper", namely a filler added to a resin composition for coating a paper;

that, however, none of the four specific utilities of SUNSPHERE silica particles as a resin filler are applicable to a reinforcing agent in a resin composition for forming a printing element; and

that, therefore, Asahi Glass only discloses the use of silica particles in the coated printing paper and has no teaching or suggestion about the use of silica particles as a reinforcing agent in a resin composition for forming a laser engravable printing element.

As apparent from the explanation above, a person skilled in the art will not have been motivated to combine the teachings of Asahi Glass with the resin composition of Cushner for forming a laser engravable printing element.

[B] Combination of Cushner and Sasashita

In the outstanding Office Action, the Examiner states that Cushner has no teaching about resin (a) having a molecular weight of 5,000 to 300,000 with a softening

temperature of 500 °C or less or about an organic methacrylate compound contained in the composition (see page 4, lines 7-10 of the Office Action); however, Sasashita teaches that the resin used in Cushner meets the molecular weight requirement of the present invention and also teaches the use of methacrylate in a the printing plate of Cushner (see page 5, lines 2-10 of the Office Action). The Examiner's reasons for combining the teachings of Cushner and Sasashita are based on the fact that Sasashita discloses a printing plate. However, as explained in detail below, Sasashita discloses a printing plate formed by a photolithographic method, but has no teaching or suggestion about a laser engravable printing element.

In the invention of Sasashita, a printing plate is produced by a photolithographic method using a photo-mask. This apparent from the following description found in Sasashita.

> "To produce a printing plate from the photosensitive resin plate material of the present invention, a film of a negative or positive original is airtightly attached to the photosensitive layer that has been formed in the manner mentioned above, and light generally having a wavelength of from 300 to 400 μm is irradiated thereto from a high-pressure mercury lamp, an ultra-high-pressure mercury lamp, a metal halide lamp, a xenon lamp, a carbon arc lamp, a chemical lamp or the like, for pattern exposure. The exposed area is made **insoluble** due to the photo-polymerization. Next, the thus-exposed layer is developed with neutral water, using a spray developing device or a brush developing device, whereby the non-polymerized area is dissolved out into the water. In this manner, a relief is formed on the support. After drying, a printing plate is obtained and this is used for printing." (emphasis added) (see col.9, lines 6-20 of Sasashita)

As apparent from the above-quoted description, in Sasashita, a printing plate is produced by placing a photo-mask on a photosensitive resin layer formed on a support; image wise exposing the resultant masked layer to light, to thereby photo-polymerize the exposed portions of the resin; and developing the exposed layer by washing away the unexposed portions of the resin with neutral water.

On the other hand, both Cushner and the present invention are directed to laser engraving, wherein a printing element (a cured resin composition) is engraved with laser for forming a printing plate (see also Exhibit 5, "Observation 1" of Mr. Yamada Declaration submitted herewith which explains the definitions of the terms "printing element" and "printing plate"). The laser engraving process involves a quite complex mechanism which is completely different from a photolithographic method using a photo-mask. This is apparent from the following descriptions found in Cushner.

> "Laser engraving involves the absorption of laser radiation, localized heating and removal of material in three dimensions and is an extremely complex process.

> Thus, laser engraving of at least one preselected pattern into a reinforced single layer element is quite complex." (emphasis added) (see col.8, lines 15-19 of Cushner)
>
> The laser engraving process of the invention does not involve the use of a mask or stencil. This is because the laser impinges the sample to be engraved at or near its focus spot." (emphasis added) (see col.8, lines 39-41 of Cushner)
>
> "Factors to be considered when laser engraving include, but are not limited to, deposition of energy into the depth of the element, thermal dissipation, melting, vaporization, thermally induced chemical reactions such as oxidation, presence of air-borne material over the surface of the element being engraved, and mechanical ejection of material from the element being engraved. Investigative efforts with respect to engraving of metals and ceramic materials with a focused laser beam have demonstrated that engraving efficiency (the volume of material removed per unit of laser energy) and precision are strongly intertwined with the characteristics of the material to be engraved and the conditions under which laser engraving will occur." (emphasis added) (see col.8, lines 49-61 of Cushner)

As apparent from the above-quoted descriptions of Cushner, when a printing plate is produced by laser engraving, a laser is used to melt and remove parts of a printing element, to thereby form a printing plate having a relief pattern thereon. Further, the characteristics of the resin composition used for forming the printing element are important for achieving a high engraving efficiency and precision.

In this situation, Sasashita having no descriptions about laser engraving has no teaching or suggestion that the materials used in Sasashita are also effective for producing a laser engravable printing element. Therefore, even though Sasashita teaches the use of a resin (i.e., an isoprene-butadiene copolymer) and an organic compound (i.e., methacrylate) for producing a printing plate by a photolithographic method using a photo-mask, a person skilled in the art would not have been motivated to use the resin and the organic compound used in Sasashita for producing the printing element of Cushner which is subjected to laser engraving for forming a printing plate.

As apparent from the explanations of items [A] and [B] above, a person having ordinary skill in the art of preparing a laser engravable printing element would not have been motivated to combine the teachings of Asahi Glass and Sasashita with those of Cushner. Therefore, the resin composition defined in claim 1 of the present application which comprises: (a) a resin which is in a solid state at 20 °C and having a number average molecular weight of from 5,000 to 300,000, (b) an organic compound having a number average molecular weight of

less than 5,000 and having at least one polymerizable unsaturated group per molecule, and (c) inorganic porous particles having an average pore diameter of from 1 nm to 1,000 nm, a pore volume of from 0.1 ml/g to 10 ml/g and a number average particle diameter of not more than 10 μm, is not obvious over Cushner, Sasashita and Asahi Glass taken alone or in combination.

Since the patentability of the resin composition described in claim 1 has been established, Applicants believe that the patentability of each of claims 2-8 and 10-15 has also been established.

From the forgoing, it is believed that the Examiner's rejections have been overcome, and the present application is now in condition for allowance. Reconsideration and early favorable action on the claims are earnestly solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,

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